



Wisconsin Invasive Species Program Report

Fiscal year 2015

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Introduction

Purpose of Report

The Department of Natural Resources (department) is required by *Wisconsin Statutes* to submit a biennial report to the legislature, governor, and Wisconsin Invasive Species Council detailing Wisconsin's invasive species programs, the state's progress in controlling invasive species, current expenditures, and future needs. The report is due by October 1 in even numbered years, with an interim report required in odd numbered years. This current report meets the interim reporting requirement and covers the period of July 1, 2014 through June 30, 2015.

What Are Invasive Species?

The legislature has officially defined invasive species in *Wisconsin Statutes* as “nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.” These species can be aquatic or terrestrial weeds, insect pests, nuisance animals, or disease-causing organisms. They can occur in all types of habitats and affect urban and rural areas throughout the state.

Program Administration

Invasive species impact Wisconsin citizens and habitats of every type—from power companies to municipal foresters to holiday boaters, from meandering rivers to state parks to citizen backyards and gardens. As a result, invasive species management has grown as a state priority over recent decades. Working with numerous partners, the department has been engaged in work to **prevent** the arrival of new invasive species, **detect** new infestations, **respond** to invasions, and **control** invasive species populations. During the recent reporting, the department and its partners have continued to make progress across the state.

Department Invasive Species Team

The Department Invasive Species Team ensures a cohesive “one DNR” response by bringing together staff from the divisions of Land, Forestry, and Water, as well as the Law Enforcement and Science programs¹. This interdisciplinary team works to identify common priorities, establish consistent policies, coordinate the department's outreach on invasive species, and ensure uniform enforcement of the [Invasive Species Identification, Classification, and Control rule](#) (ch. NR 40, Wis. Adm. Code). The team is coordinated by the statewide Invasive Species Coordinator (currently vacant) under the sponsorship and direction of agency administration. During the current reporting period, the team has focused efforts on engaging partners in revising ch. NR 40 Wis. Adm. Code and providing training and outreach for businesses and other stakeholders. This work supports and supplements the ongoing, on-the-ground or in-the-water work by the department and its partners.

¹ The names of department organizational units used in this report reflect the organizational structure in place during the reporting period. The department is currently undergoing a strategic alignment exercise that may result in some functions being transferred to different organizational units or units being renamed to more clearly articulate their programmatic responsibilities.

Wisconsin Invasive Species Council

The department works closely with the [Wisconsin Invasive Species Council](#) (Council), which provides guidance and recommendations to the department regarding invasive species programs and regulations. Created by the legislature in 2001, the Council includes governor-appointed representatives from state agencies, industry, academia, and nongovernmental organizations. The department's Statewide Invasive Species Coordinator provides staff support to the Council, and the director of the Bureau of Science Services serves as the department's agency representative as one of the [twelve members](#) of the Council.

The Council makes recommendations to the department regarding:

- A system for classifying invasive species.
- A procedure for awarding cost sharing grants to control invasive species.

The Council also conducts studies of issues related to controlling invasive species including:

- The effect of the state's bait industry on the introduction and spread of invasive species.
- The effect of the state's pet industry on the introduction and spread of invasive species.
- The acquisition of invasive species through mail order and Internet sales.
- Other issues as determined by the council.

"The Council brings in both stakeholder and subject matter expert input into agency efforts at controlling invasive species. The council also forms a bridge with partners in this effort across the state."

*-Paul Schumacher
Chair*

Wisconsin Invasive Species Council

Additional information is available on the Council's website at <http://invasivespecies.wi.gov/>.



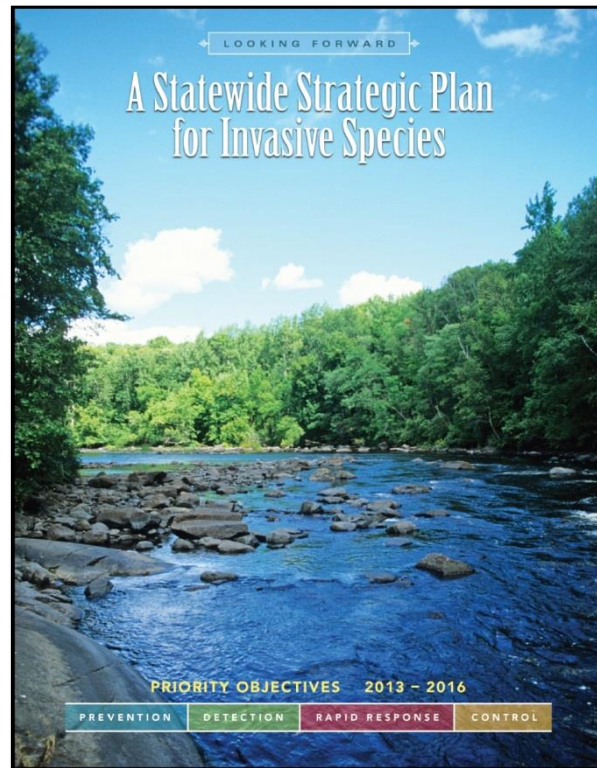
Governor appointed Council members represent industries affected by invasive species

Strategic Plans

In the spring of 2013, the department published [*Looking Forward: A Statewide Strategic Plan for Invasive Species*](#) to guide Wisconsin state agencies and partners in responding to the threat of invasive species. The strategic plan was developed by the Council in cooperation with the department and numerous stakeholders across the state. The full plan, an executive summary, and supporting appendices can be found at the [Wisconsin Invasive Species Council website](#). Over the past year, the Department Invasive Species Team has used the statewide strategic plan to help guide its work.

The Aquatic Invasive Species (AIS) program began an effort in 2014 to revise Wisconsin's statewide AIS strategic management plan. When the previous plan was prepared in 2002, it focused on building and funding an AIS program. Thirteen years later, Wisconsin has one the most established AIS programs in the country and has a network of partners throughout the state that are working on AIS issues. The new AIS strategic plan for Wisconsin will shift focus from not just building an AIS program, but maintaining the program that exists while positioning the department and partners to address emerging AIS issues.

A core team consisting of representatives from the University of Wisconsin-Extension, Wisconsin Lakes, River Alliance of Wisconsin, Great Lakes Indian Fish and Wildlife Commission and various department programs formed in late 2014 to lead the process. Multiple meetings and communications with stakeholders across the state assisted the team in developing a rough draft of the plan. The core team will continue to meet throughout 2015 with the goal of having a completed draft AIS strategic plan by the end of the year.



The Statewide Strategic Plan for Invasive Species is available online by visiting:
<http://invasivespecies.wi.gov>

Invasive Species Rule (ch. NR 40)

In 2009, Wisconsin established a comprehensive [Invasive Species Identification, Classification, and Control](#) rule (ch. NR 40, Wis. Adm. Code) to regulate some of the most threatening invasive species. The rule creates a comprehensive, science-based system with criteria to classify invasive species into two categories: “prohibited” and “restricted.” With certain exceptions, the transport,

“The Wisconsin Green Industry Federation comprised of seven member associations in the nursery and landscape industry, support the rule in its proposed form and pledge to continue to work with the department, the Governor’s Council on Invasive Species, and other stakeholders to limit the introduction of invasive species and pests into Wisconsin.”

-Brian Swingle
Executive Director
Wisconsin Green Industry Federation

possession, transfer and introduction of prohibited species is banned. Restricted species are also subject to a ban on transport, transfer and introduction, but possession is allowed, with the exception of fish and crayfish. The department may issue permits for research or public display of any listed invasive species. For species other than invasive fish and crayfish, permits may also be issued for other purposes.

Throughout 2012 and 2013, the Department Invasive Species Team worked closely with the Council and various species assessment groups (SAGs) made up of experts and affected stakeholders to develop revisions to the existing rule to regulate additional species and provide clarifications. The department

released a draft rule proposal along with an economic impact analysis in October 2013, and in April 2014, the Wisconsin Natural Resources Board authorized the department to hold public hearings on the proposed rule revisions. Public hearings were held in Madison and Green Bay in June 2014 and the Natural Resources Board adopted the final rule proposal at its December 2014 meeting. Following review and approval by the governor and several legislative committees, the revised rule took effect May 1, 2015.

Changes to ch. NR 40 include delisting two species and listing 49 new prohibited species, 32 new restricted species, and two species as split-listed (prohibited/restricted). The regulated status of five species was also changed in response to the most recent scientific information. Changes were also made to simplify the rule language and facilitate compliance.

“We are pleased that they used the best science available—as they continually assessed proposed changes and new species. Public input was solicited, listened to, and common sense changes were made.”

-Paul Heinen
State Government Relations Director
The Nature Conservancy

The Department Invasive Species Team has worked with businesses and other partners to ensure voluntary compliance with the rule when feasible and stepped enforcement when appropriate. The team has conducted extensive outreach and provided numerous trainings to stakeholders and the public to ensure that each citizen in Wisconsin knows what they can do on their own land, lake, or park. For example, the team collaborated with the Department of Agriculture, Trade and Consumer Protection to provide registered nurseries and nursery suppliers with information regarding regulated species, phase-out periods included in the rule, and steps they can take to ensure compliance. The Invasive Species Coordinator serves as the single public point of contact for permitting and enforcement. The Department Invasive Species Team and program staff draft NR 40 permits, monitor compliance, and carry out enforcement.

Rapid Response Framework

The Department Invasive Species Team developed a comprehensive response framework as an internal protocol for responding to newly detected populations of suspected invasive species. This framework does not attempt to provide answers or solutions to all of issues associated with response activities. Rather, it will assist agency managers in responding thoroughly, professionally, and effectively to the many challenges that result from new invasions. Once finalized, this framework will be used when: 1) an invasive species is found in a county where it is listed as prohibited, or 2) an invasive species is discovered in an area of the state where it has not been previously documented and legal access is granted for entry onto the property the species is found on. This framework, however, will not be used when the species is white nose syndrome, emerald ash borer or gypsy moth as Wisconsin already has species-specific plans in place for these species.

The department purposefully did not prepare detailed “response plans” for individual species that have not yet invaded the state since responses must be guided by case-specific facts. How a species invades—their number, density and distribution, proximity to other known invasions, the time of year, land or water use, and numerous other factors—determines what actions are possible and useful. Some pre-planning efforts for future invasions can be very valuable, but there is a limit to the level of response planning that is useful until an invasion actually occurs. For example, an understanding of the species biology, habitats invaded, possible actions and real constraints is very helpful in advance of an invasion. Similarly, establishing communication networks with potential partners and stakeholders ahead of an invasion can be useful.

The department will seek public review and comment on the proposed response framework prior to finalizing it in the next year.

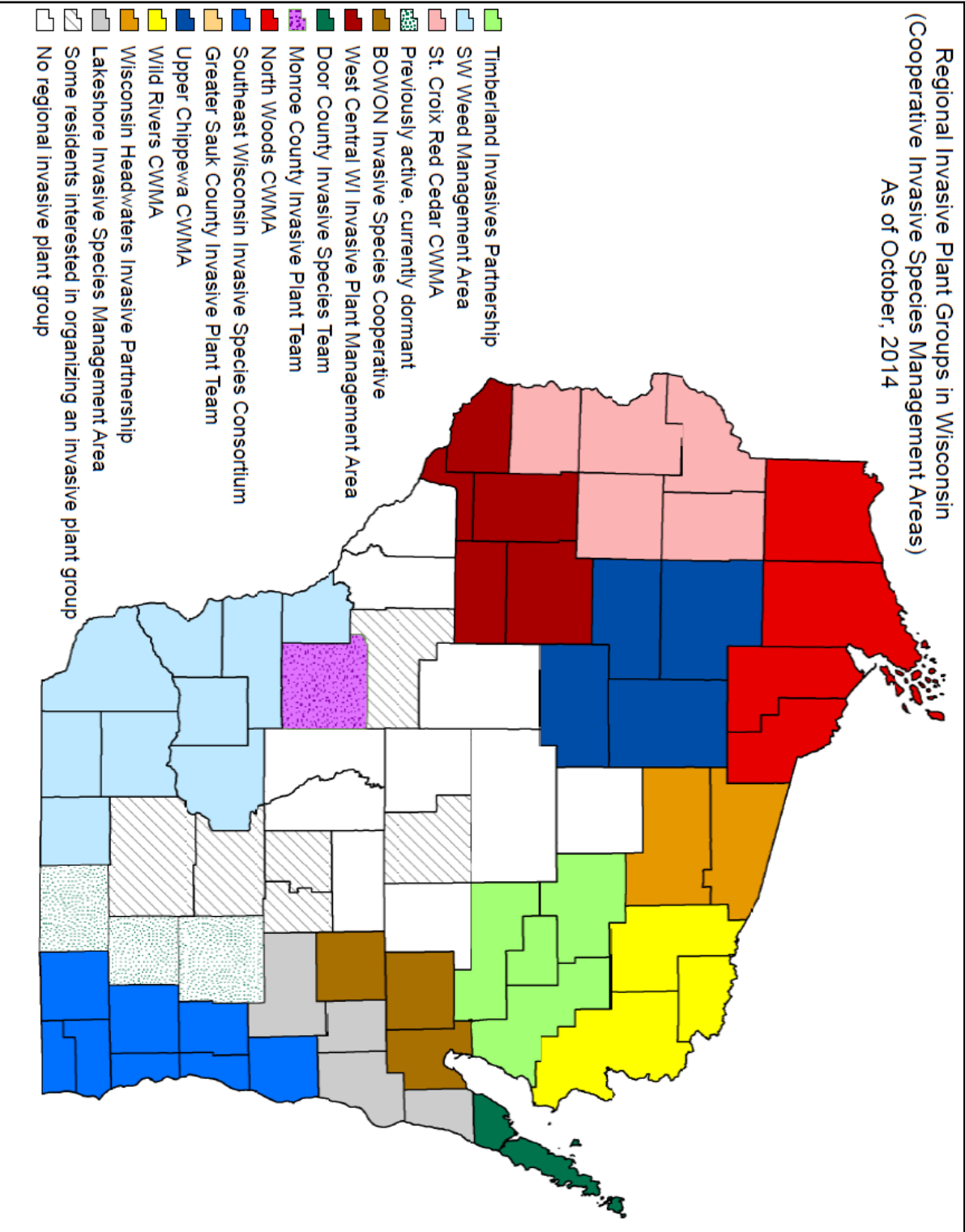
Active and Coordinated Partnerships

Partnerships with other agencies and citizen groups throughout the state leverage our efforts and keep us all moving forward. The department’s work on invasive species would not be nearly as successful without the collaborative work of our many partners. In the world of aquatic invasive species (AIS), the Wisconsin Lakes Partnership, River Alliance of Wisconsin, and county AIS coordinators provide a foundation of cooperation across the state. As of June 2015, there are 47 counties, hundreds of lake organizations, and thousands of volunteers actively participating in AIS prevention, detection, containment, and control efforts. For terrestrial species, regional cooperative invasive species management areas (CISMAs, also sometimes called cooperative

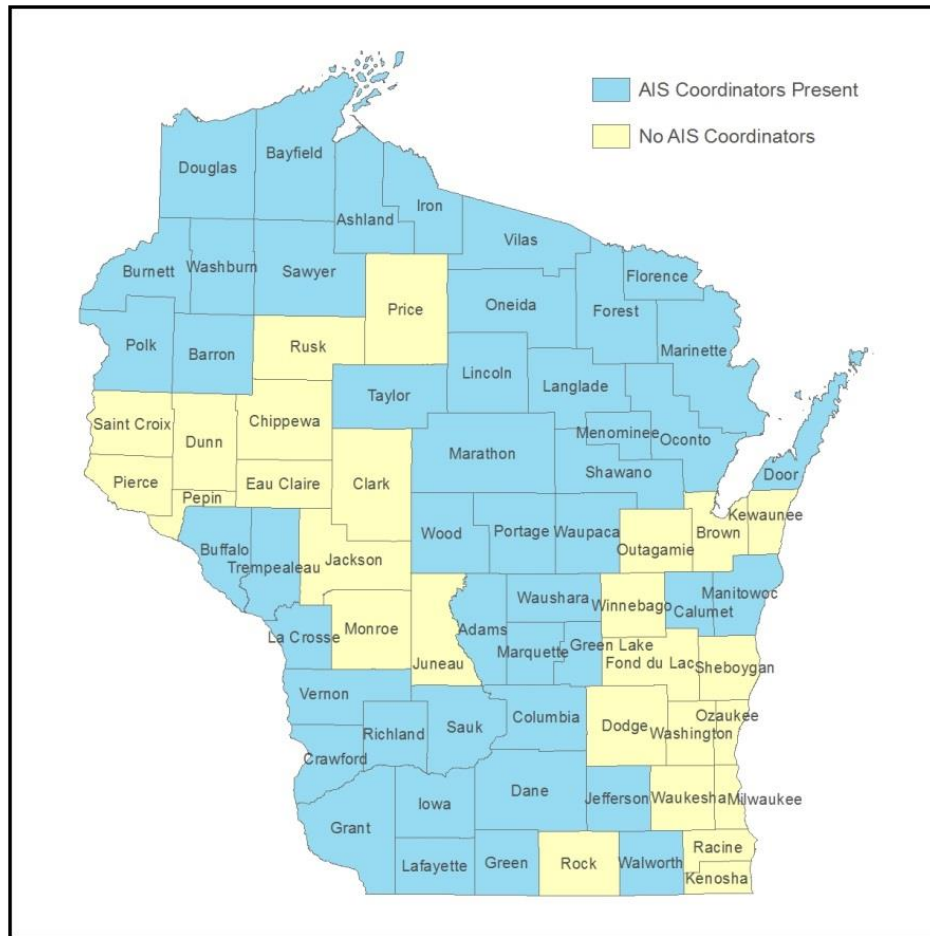
weed management areas or CWMAs) provide local focal points for invasive species work. As of June 2015, there are eleven larger established CISMAs composed of from one to nine counties. There are many more focusing on smaller regions like Madeline Island and the Mukwonago River watershed. In total, they encompass 56 counties and thousands of volunteers. The department provides information and technical support to all of these partnerships.

Thanks to the Weed Management Area grant component of the Wisconsin Forest Landowner Grant Program, the department has been able to provide small amounts of funding to many existing and start-up CISMAs. These regional partnerships provide outreach about invasive plants, animals and pests to landowners, local units of governments and others in their counties. CISMA volunteers are the ‘on-the-ground’ folks who report and often do control work for new or expanding invasive species populations.

AIS coordinators and CISMAs are critical partners for locating, reporting and stopping the spread of priority invasive species before they become widespread and abundant. Twice each year, the department and UW-Extension coordinate an in-person meeting of all county and regional AIS coordinators. In spring 2015, the AIS coordinators met jointly with representatives of the regional CISMAs. The joint meeting provided an opportunity for people to meet others in their region working on invasive species issues, share information and resources, and plan for cooperative efforts.



Map of state Cooperative Invasive Species Management Areas (CISMAs)



State Aquatic Invasive Species Coordinators by county

The department also works in close coordination with other state and federal agencies and tribal organizations on invasive species issues to ensure a coordinated statewide approach without overlapping regulatory pressure. Over the biennium year we have collaborated extensively with the Wisconsin departments of Transportation and Agriculture, Trade and Consumer Protection and the U.S. Department of Agriculture on invasive species prevention and control efforts.



A diver surfaces through heavy infestation of Eurasian water milfoil.

State and Federal Expenditures

2015 spending on invasive species totaled approximately \$8.4 million, spread across five divisions in the department. For any questions regarding invasives expenditures or for additional details, contact the Invasive Species Coordinator at Invasive.Species@wisconsin.gov or 608.266.8931.

	State Funds			Federal Funds	
Division	Segregated Revenue	Program Revenue	General Purpose Revenue		2015 Total Expenditures
CAES	176,386	--	--	--	176,386
Forestry	805,424	--	--	137,392	942,815
Lands	288,126	268,455	343	97,196	654,120
Law Enforcement & Science Services	846,220	--	1,113	38,000	885,332
Water*	4,910,037	152,334	97,277	593,829	5,753,477
Department Total	7,026,192	420,789	98,732	866,416	8,412,130

*Of \$4.9 million State Segregated Revenue expended by Water, approx 69% was allocated to local assistance (\$3,404,132)

Program Needs

Statewide Needs and Challenges

The department has identified several areas needing improvement to ensure Wisconsin's ability to **prevent** the arrival of new invasive species, **detect** new infestations, **respond** to invasions, and **control** the impact of invasive species established in the state. The following needs are based upon the five top priorities identified in the *Statewide Strategic Plan for Invasive Species*. Addressing these needs will require continued emphasis on outreach, education, voluntary compliance, and cooperation with a range of partners.

1. Increase awareness about invasive species impacts and best management practices.

Possible Solution: Improve education and outreach about the impacts of invasive species and what citizens, lawmakers, and others can do to make a difference.

2. Decrease the number of invasive species introduced to and spread through Wisconsin.

Possible Solution: Prevent the introduction and spread of invasive species through new and existing pathways.

3. Improve the detection of invasive species in Wisconsin.

Possible Solution: Grow networks of partners, support the use of information technology, and leverage current research.

4. Improve Wisconsin's ability to respond rapidly to new infestations.

Possible Solution: Develop new and innovative ways to support appropriate responses to new invasive species in Wisconsin.

5. Improve Wisconsin's ability to control the impacts of invasive species.

Possible Solution: Secure adequate long-term support for the control of established invasive species including coordinated, competitive aid to support local actions and partnerships.

There is a strong base of invasive species efforts to grow from in Wisconsin. By focusing on the agreed-upon priorities and building upon existing successes we ensure the state's ability to respond effectively to invasive species.

Invasive Species Program Highlights

The department administers various programs to address invasive species. The “Program Highlights” below describe some of the core accomplishments from the past year and identify some emerging invasive species challenges for:



Emerald Ash Borer

Terrestrial Invasive Species



Policeman's Helmet

Wetland Invasive Species



New Zealand Mudsail

Aquatic Invasive Species



Outreach displays

Education and Outreach

While each program has individual goals and objectives, collectively the department's programs address prevention, early detection, appropriate responses, and control measures.



Terrestrial Invasive Species

Program Accomplishments

Precautions for Regulated Forest Pests

Department Forest Health staff, with input and review by foresters, community foresters and arborists, developed reasonable precautions to prevent the spread of three forest pest species listed as prohibited or restricted in ch. NR 40 that are currently present in the state. Precautions were developed and posted for emerald ash borer, gypsy moth and beech scale. By using these precautions, businesses and individuals insulate themselves from inadvertent violation of ch. NR 40 when dealing with potentially infested wood.

Reduced Firewood Movement

In 2014, the allowable distance that uncertified firewood could be brought from when entering state lands was reduced from 25 to 10 miles according to ch. NR 45 Wis. Adm. Code. This was done to keep the risk of introduction of several damaging pests and diseases to state lands stable despite spread of several species including emerald ash borer, oak wilt and beech bark disease. This change in regulation and accompanying notification and education effort was followed by a survey of campers to determine awareness of risks of firewood movement and compliance with the regulation. This survey is the latest of a series done every other year since 2006 when regulation of wood entering state lands was first implemented with a ban on wood from out of state. Awareness of the risk of introducing invasive pests increased rapidly between 2006 and 2010 and has leveled off at around 97 percent since then. Compliance with firewood regulations

has increased steadily from 58 percent in 2006 to 92 percent in 2014. The message to not move firewood has been taken to heart as few people are now moving wood for use while camping, even when they camp at non-state campgrounds which may or may not regulate wood that enters.

Mountain Pine Beetle Quarantine

In recent years, mountain pine beetle, a native of the Rocky Mountains, has become one of the most damaging pests of timber in the world. This species has killed millions of acres of pine forest from southern California and New Mexico to northern British Columbia and Alberta. The

“Looking at the concept of an exterior quarantine for the Mountain Pine Beetle gives us an opportunity to engage stakeholders to develop measures to protect Wisconsin’s pine forest resource from a devastating pest, while minimizing the potential economic impact on Wisconsin businesses.”

-Brian Kuhn
Director, Plant Industry Bureau
Department of Agriculture, Trade and
Consumer Protection

natural barrier of the Great Plains has historically prevented spread of mountain pine beetle into pine forests of the Great Lakes, but human transport of infested wood could introduce the beetle to pine forests here. Because the mountain pine beetle is a native insect, the federal government cannot quarantine it. States, however, are beginning to place exclusionary quarantines on products that could carry the pest across state lines. In January 2015, Minnesota prohibited import of pine wood with bark from areas infested with mountain pine beetle. In Wisconsin, department forest health staff have been working with the Department of Agriculture, Trade and Consumer Protection to explore a similar exterior state quarantine which could take effect in 2016. Staff from both agencies worked together in 2015 to ensure that the ch. NR 40 language related to mountain pine beetle reinforces the exterior quarantine should the beetle turn up here.

*“Wisconsin Society of American Foresters believes the revisions to NR40 are necessary to prevent introduction and control existing populations of invasive species that are harmful to Wisconsin’s forest resources. Of particular concern to WI SAF is the listing of the mountain pine beetle (*Dendroctonus ponderosae*) as a prohibited species. If introduced, the mountain pine beetle has the potential to severely harm the state’s pine resource and the industries that rely on this forest tree species.”*

-Tom Hittle
State Chair
Wisconsin Society of American Foresters

Suppression Grant Program

During fiscal year 2015, the department's suppression grant program distributed 20 grants to control 13 terrestrial invasive plant species on private and public land in 14 counties. Forestry funding (\$20,000) controlled invasive plants in forests while Natural Heritage Conservation funding (\$5,000) did the same in other ecosystems.

Terrestrial Invasive Plant Species	Counties	Funding Source*
Amur cork tree <i>Phellodendron amurense</i>	Adams, Columbia	FD
black swallow-wort <i>Vincetoxicum nigrum</i>	Waukesha	FD
greater celandine <i>Chelidonium majus</i>	Dane	FD
Oriental bittersweet <i>Celastrus orbiculatus</i>	Waukesha	FD
princess tree <i>Paulownia tomentosa</i>	Sauk	FD
(Asian) wisteria <i>Wisteria</i> sp.	Juneau	FD
European marsh thistle <i>Cirsium palustre</i>	Langlade	NHC
garden valerian <i>Valeriana officinalis</i>	Sauk	NHC
glossy buckthorn <i>Rhamnus frangula</i>	Langlade, Oneida	NHC
porcelain berry <i>Ampelopsis brevipedunculata</i>	Dane	NHC
wild chervil <i>Anthriscus sylvestris</i>	Chippewa, Columbia, Dunn, Milwaukee, Oneida, Sheboygan	NHC
yellow archangel <i>Lamium galeobdolum</i>	Saint Croix	NHC
yellow bedstraw <i>Galium verum</i>	Iowa	NHC

*FD=Forestry Division; NHC=Natural Heritage Conservation Bureau

These grants enable rapid and economical responses to species listed as prohibited in [ch. NR 40](#), Wis. Adm. Code, before their populations grow too large for effective control. Based on statewide reports of prohibited plants, the department awards funds to private contractors, department properties, weed management groups or others to conduct control measures based on need, threat, available funds and likelihood of success.

Control and eradication of terrestrial invasive plants is often a multi-year effort since some need multiple treatments before they are killed or seeds sprout after the parents are removed. The intermittent nature of funding makes it difficult to follow through on control efforts in non-forest ecosystems.

Two examples highlight the importance of this funding program. Amur cork tree is present and spreading at the MacKenzie Center. This year,

“Amur cork trees spread around the MacKenzie Environmental Center property, threatening both our state lands and the surrounding region. The invasive plant suppression funds allowed us to start tackling the problem. We now have a plan in place to complete cork tree control.”

-Chrystal Seeley-Schreck
Natural Resources Educator
MacKenzie Environmental Center

the department funded a survey of invasive plants at MacKenzie and a plan for control work in fiscal year 2016. The control work will support outreach on invasive species at MacKenzie in addition to controlling problematic species. Second, several small populations of princess tree were treated in Sauk County as they posed threats to important conservation areas. One population was next to Devils Lake State Park and others were near the Lower Wisconsin State Riverway. The suppression grant program, while small, is important in helping achieve the legislature's mandate to control and eradicate invasive species in Wisconsin.



Amur Cork Trees

Feral Pig Response

A Feral Pig Task Force, with representatives from the departments of Natural Resources and Agriculture, Trade and Consumer Protection, U.S. Department of Agriculture (USDA) Veterinarian Services, USDA Wildlife Services, Wisconsin Pork Producers, and Wisconsin Conservation Congress met several times over the last year to discuss efforts and objectives to reduce feral hog populations, report sightings, and provide outreach efforts on the destructive nature and risks to the swine industry.



Feral Pigs pose a threat to Wisconsin woodlands and domestic swine operations

The USDA Wildlife Services received funding from the U.S. Congress to begin a collaborative, national feral swine management initiative with numerous local, state, and federal partners. Wisconsin was identified as a ‘tier 1’ state where the opportunity to eradicate feral populations was high. Beginning in 2014, USDA staff gained access to numerous properties for monitoring and followed up on leads submitted to the department’s web-reporting system. USDA determined that the known population in southwest Wisconsin is very low, likely due to the efforts of landowners and hunters. Vigilant monitoring and reporting is crucial to determine and reduce populations at very low densities.

Jumping Worm Response

In September 2009, ch. NR 40 prohibited the sale, introduction, transport, possession, and propagation of all *Amyntas* species (known as jumping worms).

In October 2013, the department discovered the first known population of jumping worms in Wisconsin, in Dane County. Following initial, statewide outreach efforts by the department, the public became actively involved in reporting the presence of jumping worms, which allowed us to get a better idea of their spread and the mechanisms by which they may be moving. During 2014, the department verified a number of populations in five counties. Based on this information, jumping worms better fit the classification of a restricted species under ch. NR 40.



Jumping worms were first detected in 2015 in Dane County.

Prior to the rule revision on May 1, 2015 the department worked with the public and the Green Industry to craft a suite of “reasonable precautions” and “best management practices” (BMPs) to limit and minimize the further spread and introduction of jumping worms under their potential new “restricted” classification. The department’s Forest Health team contacted individuals and professionals within the Green Industry (nurseries, floriculture, sod production, landscape installation and maintenance, and Christmas tree production), recycling managers representing cities, towns and municipalities, University staff, researchers and gardeners. Our goal was to draft “Reasonable Precautions” and best management practices as a group. The *Amyntas* Advisory Committee met four times in 2015 and agreed upon a set of basic BMPs/Reasonable Precautions that could be used to prevent and minimize the spread of jumping worms and most other invasive species found in soils. The focus is on simple actions people can take.

The department developed two publications; an [identification card](#) and a [brochure](#) with background information and the best management practices, both of which were shared at the 2015 Wisconsin State Fair. The public, as well as the Green Industry, has been able to utilize these publications, the [webpage](#) and the email Invasive.Species@wi.gov for reporting.

The Committee will meet again in the fall of 2015 to review reports and decide on next steps. Working together on a concerted effort to fight the spread of this particular invasive species has helped all stakeholders learn more. Understanding both environmental and economic harm that one species can cause has opened up new ideas, and new partnerships.

Improved Handling of Public Calls about Emerald Ash Borer

Anticipating a rise in calls to the emerald ash borer (EAB) reporting phone line from quarantined counties, staff from the department and the Department of Agriculture, Trade and Consumer Protection agreed to divert calls from these counties to the DNR Call Center. Forest Health program staff trained a team of Call Center staff to handle calls about EAB with a special emphasis on directing callers to guidance on management options for EAB. This arrangement has multiple benefits:

- callers can speak with a live person from 7:00 AM to 10 PM, seven days a week, in English, Spanish or Hmong,
- we have an opportunity to communicate management options, empowering callers and potentially increasing support for community ash management, and
- a potentially significant workload is diverted from forest health specialists to public information specialists who may remain on the line until the customer is satisfied



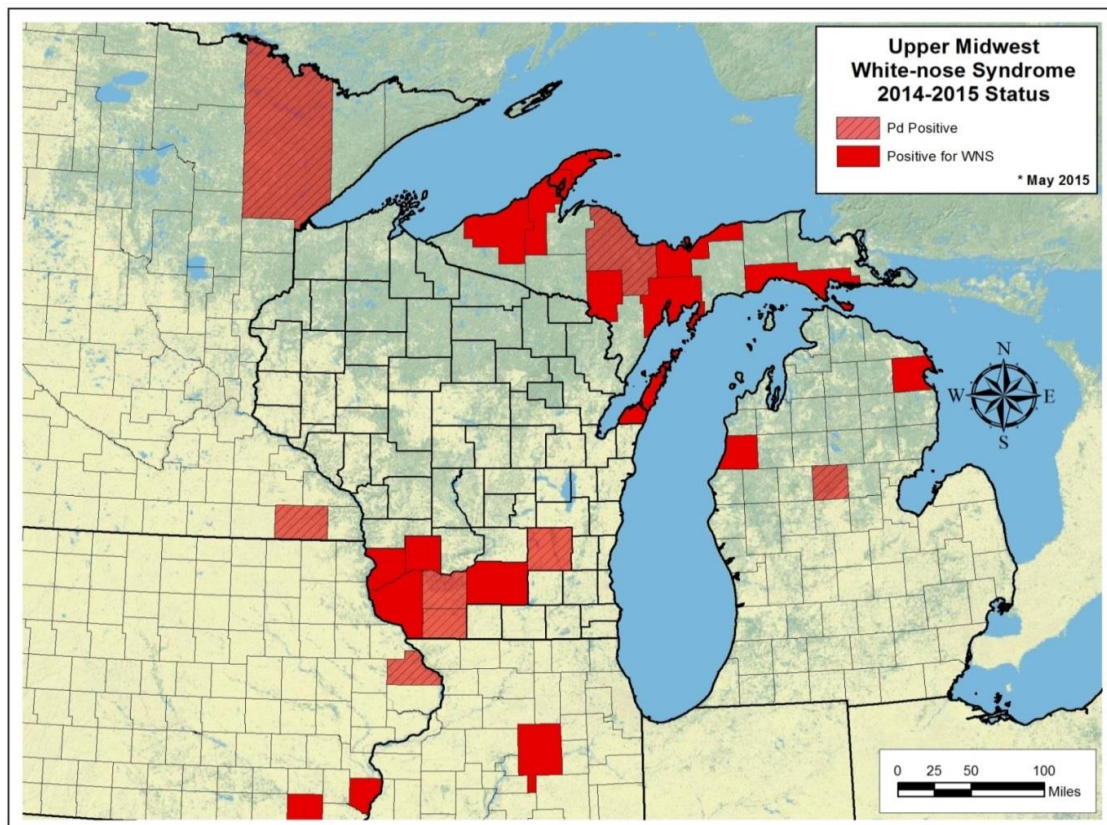
Department call center staff
Callers can speak with a person from 7 a.m. to 10 p.m. seven days a week, in English, Spanish or Hmong

Emerging Challenges

White Nose Syndrome

In January 2015, surveillance of 15 caves revealed that two bats in a single Dane County cave tested positive for genetic markers of the fungus that causes white-nose syndrome. White-nose syndrome is a deadly disease that causes hibernating bats to frequently wake, depleting their energy and causing them to starve and dehydrate or die of exposure before the end of winter. The infection does not affect people or other animal species.

Cave and mine owners were notified by the department of the winter disease surveillance findings. Efforts to control the human-assisted transmission of the fungus remain in place, including strict decontamination for researchers and department personnel as well as screening commercial cave and mine visitors. The Bureau of Natural Heritage Conservation's dedicated team is also exploring effective management strategies and continues to conduct comprehensive statewide projects to address knowledge gaps in bat trends. Through two citizen-based monitoring projects, volunteers are helping to gather crucial data on current threats and population health.



Map of known positive cases of White Nose Syndrome.

Wisconsin's four bat cave species are listed as threatened, a status which makes it illegal to kill them or take action that would result in their death. Learn more about bats and volunteering opportunities on the department's [Bat Program](#) website.

Beech Bark Disease Management

Beech bark disease involves two species: the invasive scale insect which makes the entry wounds then used by a *Nectria* fungus to infect and kill the tree. The *Nectria* fungus may be either a European or native species. Once scales are detected on a beech tree, the tree may snap unexpectedly and often before there are any other signs of distress.

Beech bark scale was placed on the first iteration of NR 40, the rule governing human movement of invasive species, in the hope that by minimizing artificial contribution to its spread in Wisconsin, we could delay the wide scale mortality of American beech from the associated fungal disease which has killed many beech trees in Michigan. Unfortunately, beech scale is also spread by wind and carried by birds and these modes of transport continued to operate. By 2014 this resulted in the presence of the scale over nearly all of the western edge of the species range in Wisconsin. For this reason, we removed beech scale from NR 40 during the update of that rule. Because of this possibility of unpredictable failure, beech infested with beech scale should be removed from around buildings, trails and roads to prevent damage or injury if the tree snaps.



Harvest of hazard beech trees, late winter/early spring 2014.

One of the department foresters in Door County had been monitoring for beech bark disease at Whitefish Dunes State Park for several years. During routine monitoring in autumn 2012, the forester found that the scale populations were increasing rapidly. Working with Parks and Natural Heritage Conservation staff, department foresters assessed the distribution and abundance of affected beech trees along trails and in other high use areas in the park. Because of the number of beech trees that had to be removed and to minimize the costs of doing so, department staff set up a commercial timber sale. To avoid damage to soils and remaining trees, the park specified the use of rubber tired equipment that could remain on the road while reaching in to remove individual trees. Until the commercial harvest could be implemented, park staff felled and processed potentially hazardous beech trees near buildings, parking lots, and other

high use areas. The commercial sale was completed in the spring of 2014. Firewood permits were also issued to reduce the slash that was left from the commercial logging operation. Firewood collectors were warned of the potential risk from the infested beech wood and educated on how to prevent spread of the beech scale on the wood they took.

New Invasive Plant Discoveries

In Wisconsin, several new populations were found of species that are prohibited or still in the “early detection” phase in Wisconsin.

Policeman’s helmet (*Impatiens gladulifera*) – Two new populations of this plant were found spreading from residential plantings to a bike path and city park in Mount Horeb and Middleton, respectively. Both were removed by hand before seeds developed and will be monitored and controlled by local residents and city staff. Another population in Shawano County, the first found in Wisconsin, had been controlled a few years ago. The local CISMA is working with the landowners to keep any newly emerging plants controlled.



Policeman's Helmet
Photos by Jan Samanek and Barbara Tokarska-Guzik

Lesser celandine (*Ranunculus ficaria*) – This plant was added to the prohibited list as of May 2015. Two existing populations, each several acres in size, were reported on the Milwaukee and Root River floodplains. Due to their size, phenology and control requirement of this plant, plans are underway to start controlling them in the early spring of 2016.



Lesser Celandine

Princess tree (*Paulownia tomentosa*) – Several trees of this prohibited species were found in Sauk City and one in Baraboo. The department worked with a local ecologist and the landowners to cut and successfully treat the tree stumps to prevent resprouting.



Princess Tree

Additional Species

In addition, several new occurrences have been reported of plants that are split listed as prohibited in one part of the state, and restricted elsewhere, where populations are more abundant. Many of these are being controlled locally, including populations of wild chervil, European marsh thistle, poison hemlock, hairy willow herb, tall mannagrass, Japanese hops, Japanese hedge parsley and black swallow-wort.

Wetland Invasive Species

Program Accomplishments

Managing Wetland Invasive Plants

Wisconsin's wetlands provide a range of environmental and economic and ecological benefits such as flood protection, filtering pollutants from the water supply, fisheries habitat and wildlife production. Invasive species that move into and infest wetlands such as purple loosestrife (*Lythrum salicaria*) and non-native, common reed grass (*Phragmites*) can greatly reduce these benefits.

Phragmites Control

To ensure control efforts are successful, the department continued to catalog the locations and extent of invasive wetland species in Wisconsin. Great Lakes Restoration Initiative (GLRI) funds were used to support and coordinate mapping a range of wetland invasive species throughout the state. Assembled in cooperation with a range of partner organizations and external data sites, these data will be used to analyze the distribution of invasive plants and assist with control project development and coordination. The wetland invasive species specialist also developed a statewide model to prioritize areas for invasive species management using pre-existing spatial databases and guidance documents authored by the department. The initial maps are consistent with known areas of high ecological quality. This modeling will be refined in the near future as additional professionals and practitioners comment on their specific ecosystems and working areas.

GLRI funds were also used in conjunction with the mapping efforts to further work begun in 2013 to coordinate a large scale early detection and control project for non-native *Phragmites australis* within recently invaded western Lake Michigan basin counties. The project in 2014 spanned 18 counties and identified over 450 sites where most infestations of *Phragmites* are still young and small. Department staff and partner agencies from across the basin confirmed the reported sites, and a contractor was hired who treated the sites with an effective herbicide in late summer/early autumn. The few additional non-native stands west of the basin were also mapped as a prelude to eliminating them through partners with other funds. Early in 2015 the project was expanded to 1550 sites, including both Lake Superior and Lake Michigan basin counties. All preparation work was done for herbicide treatments in the fall. Eliminating these pioneer non-native *Phragmites* stands will help prevent its spread to many inland lakes and wetlands, and prevent the wetland degradation seen in eastern states and parts of Wisconsin's Lake Michigan shoreline counties.



A helicopter sprays a large stand of phragmites along the west shore of Green Bay.
The dead plants are then mowed in the winter

GLRI funds also supported efforts to reach out to all wetland owners with *Phragmites* in the project area to help them better understand the problems caused by *Phragmites*, as well as the department's strategy for prioritizing its management where it can be most effective. Additional contacts have included cooperative weed management associations, local governments and state tribal groups to be sure that they are aware of our efforts, and that we both support their involvement, as well as integrate all management efforts. The Great Lakes Indian Fish and Wildlife Commission and some tribal groups have been particularly helpful in treating infested sites in their respective areas. A new brochure was created and used in letters to all landowners. Presentations about a variety of wetland invasive plants were also given at a number of venues, including Kemp Biological station, and various conferences.

Purple Loosestrife Biocontrol

The highly successful purple loosestrife biocontrol project continued to recruit and assist volunteers and coordinators in raising *Galerucella* biocontrol beetles. This program is supported by a wide range of individual citizen cooperators statewide, as well as many NGOs and governmental organizations, including the McNaughton Correctional Facility in Oneida County. Participants raise beetles that are taken to wetlands infested with purple loosestrife. The beetles feed on the loosestrife, weakening it to a point where native wetland plants can flourish.



McNaughton inmates prepare loosestrife plants for raising biocontrol beetles

Work with Waterfowl Hunters

Identifying, understanding, and addressing invasion pathways in addition to traditional boaters and anglers are key to protecting Wisconsin from new invasions. Waterfowl hunters are a group that is often left out of the department's education efforts because their boating season falls outside of the period when watercraft inspectors regularly do survey work. In order to fill this knowledge gap, the department, University of Wisconsin-Extension, and local partners worked together to survey waterfowl hunters, develop outreach materials, and distribute them throughout the state.



Waterfowl outreach signs

A 2015 statewide survey of waterfowl hunters shows that 92 percent of waterfowl hunters have heard of AIS, but 70 percent knew that hunting gear can transport invasive species. Waterfowl hunters also appear to be at least as transient as the general boating community, with 50 percent of waterfowl hunters using multiple waters within five days. In response to this information provided by the survey, outreach signs and a brochure were produced and distributed to hunters by local partners. Moving forward, the department and UW-Extension will work with local partners to produce and place hunting gear cleaning stations to help hunters take action to prevent the spread of AIS.



Program Accomplishments

Wisconsin's Ballast Water Permitting Program

Ballast water has been responsible for the introduction of numerous aquatic invasive species such as Zebra mussels, Spiny Water fleas, and the Round Goby. There are now at least 184 aquatic invasive species in the Great Lakes. Wisconsin has required a permit for the discharge of ballast water into the Great Lakes since 2010. This permit system and associated inspection program helps to ensure that ocean going and inter-lake vessels passing into or through Wisconsin Great Lakes waters are in compliance with state ballast water laws.

During the FY2015 the department issued new and re-issued permits to over 80 companies, for 287 vessels. The department conducted 48 inspections during this period. The Wisconsin state legislature recently eliminated a program sunset clause which would have eliminated the permit

fee. This action ensures that Wisconsin will continue to monitor international vessels visiting our ports or “Lakers” that are carrying cargo between Great Lake ports to ensure compliance with measures to prevent the spread of aquatic invasive species.

Decontamination/Disinfection Manual Code

The department updated and revised its own internal “Manual Code” which directs department staff on how to clean their boats and equipment prior to moving between water bodies.

Following a public comment period, the code was finalized and is now being rolled out to staff and partners.



Water Guard supervisor Greg Stacey decontaminates a boat at Lake Delevan.

Asian Carp

In 2014, the U.S. Fish and Wildlife Service (USFWS) collected 100 water samples in June and July from both the Fox and Milwaukee Rivers and tested them for Asian carp eDNA. The June samples all came back negative while one sample from the Fox River tested positive for silver carp eDNA. After notifying the department of this finding, the USFWS agreed to collect an additional 100 samples from the Fox River to determine if eDNA for silver carp could again be located. Two additional sampling rounds of 100 samples were completed in October 2014. No additional Asian carp eDNA was detected.



Invasive Silver Carp pose a threat to Wisconsin waterways. The department works with others to sample for carp eDNA.

Great Lakes and Mississippi River Interbasin Study (GLMRIS)

The movement of AIS between waterbodies can happen in any number of ways. In Wisconsin boaters are the number one mechanism for AIS dispersal between inland waters. Canals and diversions are an important pathway for AIS movement between the Great Lakes and the Mississippi River and the number one location where this occurs is located in Chicago. Congress authorized the US Army Corps of Engineers (ACOE) to study potential connections between the Great Lakes and Mississippi River basins and to present a range of options and technologies to prevent the transfer of aquatic nuisance species (ANS) between the Great Lakes and Mississippi River basins through aquatic pathways.

Using the GLMRIS report the Chicago Area Waterway System (CAWS) Advisory Committee has been working to find a two-way, long-term solution that prevents the inter-basin transfer of AIS while also maintaining or enhancing transportation, maritime commerce, water quality, recreation, and flood protection in the region. The CAWS Advisory Committee is working to develop consensus recommendations on a long-term solution by December 2015. As a member of the Great Lakes Panel of the Aquatic Nuisance Species Taskforce, Wisconsin is represented on the CAWS Advisory Committee and participates in these discussions.

Baseline Statewide Early Detection Lake Monitoring Project

The department is in the fifth year of a five-year project to monitor 200 lakes annually to evaluate the rate of AIS spread. More than half of Wisconsin's 1,600 lakes will be monitored for AIS. Data from the first four years suggest that there is no change in the rate of spread. In addition to determining the rate of spread, this project has also identified several pioneer populations of prohibited species such as Asian clams (*Corbicula fluminea*), faucet snails (*Bithynia tentaculata*), and yellow floating heart (*Nymphoides peltata*), among others, and early rapid response efforts.

Stream Pilot Project

Since 2011, Wisconsin has been monitoring for invasive species on streams and found that AIS are less common in streams than in lakes. To improve targeted early detection monitoring on streams, biologists are collecting data on Natural Community Stratified Random sites to determine whether there is a relationship between invasive species and natural communities and invasive species. In addition, a pilot project is examining whether there is a relationship between invasive species presence and land use and recreation. These projects will improve early detection monitoring efforts on streams in the future.

AIS State Grants

President Barack Obama has strongly supported protection of the Great Lakes and under his leadership Congress passed the Great Lakes Restoration Initiative (GLRI). The GLRI program has funded a variety of clean up, restoration and protection activities including fighting invasive species. The Lakes and Rivers Section of the Department has received over \$6 million from GLRI since 2010 to fight aquatic invasive species. These funds increase Wisconsin's capacity to educate boaters about the harmful effects of AIS such as zebra mussels, Eurasian water milfoil, or spiny water fleas, and conduct early detection monitoring and response actions to find AIS quickly and contain or control them. Funds are distributed through a variety of federal agencies

but the US Fish and Wildlife Service and UW Environmental Protection Agency are the two primary agencies distributing funds for AIS activities.

In 2015, the Wisconsin lake grants program, including grants for aquatic invasive species, shifted to a single application period designed to reduce workload on field staff. With minor growing pains, the new process went relatively smoothly. Additional changes are planned as the department anticipates revising ch. NR 198, Wis. Adm. Code.

Emerging Challenges

New Zealand Mud Snail

Following the discovery of New Zealand mudsnails (*Potamopyrgus antipodarum*) in Black Earth Creek, Dane County in October 2013, the department implemented a response project to determine their distribution and prevent their spread. Monitoring included statewide winter benthic sampling, an eDNA pilot project, and multistate surveillance using the validated eDNA method. New Zealand mudsnails were not observed outside Black Earth Creek and benthic and eDNA surveillance will continue. Prevention efforts included partnering with the River Alliance of Wisconsin, Trout Unlimited, and multiple organizations to sponsor grants to engage wading angling outreach, construct wash stations, post signs, and provide presentations.



New Zealand
Mudsnail

Faucet Snail

Faucet snails (*Bithynia tentaculata*) infected with a parasitic flatworm (*Sphaeridiotrema globulus/pseudoglobulus*) that is harmful to waterfowl, were identified in Elton Creek, Langlade County in December 2014. Following the initial discovery and verification, department staff conducted reconnaissance and did not observe faucet snails outside Elton Creek. Continued monitoring will include routine benthic sampling and Snapshot Day volunteers. The discovery was communicated to stakeholders and partners like Trout Unlimited and the Menominee Tribe and actions were initiated to contain and control the population. The department is now working to identify the snails' distribution in the area.

Previously found in the Great Lakes, the Mississippi River and the Wolf River system, this is the first known occurrence of the snail in a small, cold water stream in the region. While the faucet snail was likely introduced into the Great Lakes through ship ballast, its spread may be occurring by transport on watercraft, recreational gear and even waterfowl.

Starry Stonewort

Starry stonewort (*Nitellopsis obtusa*) was discovered in Little Muskego Lake, Waukesha County in September 2014 by department staff. Following the discovery and verification, department staff delineated the population in Little Muskego and also surveyed 13 other proximal lakes. Starry stonewort was observed in two other Waukesha County lakes, one in Racine County and

one in Washington County. Lakes with starry stonewort are applying for early response grants for Clean Boats Clean Waters inspectors and manual control. Three informational workshops were held to provide information on species biology, impacts, prevention, management and the response actions.



Starry Stonewort
Photos by Paul Skawinski



Landing Blitz and Drain Campaign

The department has continued to partner with UW-Extension to lead coordinated statewide efforts to help educate boaters on what they need to do to prevent the spread of AIS in Wisconsin. The Drain Campaign occurs in early June and seeks to inform anglers. Boater and angler surveys suggest anglers do not fully understand laws related to draining water for AIS prevention. One common barrier to draining water need for anglers to transport fish home. Wisconsin's invasive species law prohibits both the transport of water and live fish. In order to overcome this barrier, the department has purchased reusable ice packs to distribute to anglers on the drain campaign weekend. The ice pack provides an alternative to transporting live fish in water and it also serves as a reminder to the angler on every subsequent fishing trip. For the Drain Campaign's third year, 10,000 ice packs were distributed at more than 150 boat landings throughout Wisconsin. Complementary communications pieces, including press releases and radio advertising, reached thousands more on that weekend.

"...encourage individuals and public groups to sponsor and participate in activities to help all Wisconsin residents and visitors gain a better understanding of the impact of invasive species on Wisconsin's waters, wildlands, cities and agricultural lands."



Warden Matt Groppi shared ice packs and a reminder with anglers to "drain your catch" at a June 2013 Team Event.

While the Drain Campaign focuses on a specific behavior, the July 4 Landing Blitz targets recreational boaters as a whole. July 4 is the busiest boating weekends of the summer that entices not only regular boaters to get on the water, but infrequent boaters and visitors from out of state as well. In order to reach this large number of boaters, the department coordinated the 7th annual Landing Blitz. Clean Boat, Clean Waters volunteers across the state spent the July 4 weekend educating boaters on invasive species laws and letting them know what they can do to prevent the spread. Data are still being entered at the time of this report, but over 6,000 people were contacted and nearly 3,000 boats were

inspected during the Landing Blitz. Additionally, more than 10,000 towels imprinted with the slogan "Stop Aquatic Hitchhikers!" were given to boaters who were already taking AIS prevention steps.

Both efforts are examples of how the department works with partners across the state to promote a message to protect Wisconsin's waters from the impacts of AIS, and both are also examples of how Wisconsin is a leader in AIS prevention across the Great Lakes region.

Habitattitude

Discoveries of new invasive species from pet release or aquarium dumping continue to persist; efforts to prevent these introductions have started. The Habitattitude campaign is one resource being used to prevent the introduction of invasive species through these pathways. Habitattitude provides general advice on responsible pet ownership while outlining alternatives to pet release. The Habitattitude campaign is a national campaign that has been developed through an industry, government, and academic partnership and has been shown to raise awareness of invasive species issues through pet owners.

The department partnered with UW-Extension and the University of Wisconsin Sea Grant Institute to better implement the Habitattitude campaign in Wisconsin. Multiple pet amnesty events have been hosted in Wisconsin and Habitattitude educational booths have been present at pet expos across the state. Habitattitude outreach materials are also available to the Wisconsin AIS Partnership thanks to a Great Lakes Restoration Initiative (GLRI) grant through Wisconsin Sea Grant. Future work will include expanding capacity for pet return networks and to develop programs to help specific stakeholders prevent the release of unwanted pets.

Invasive Species Awareness Month

The [Wisconsin Invasive Species Council](#) sponsors Invasive Species Awareness Month each June to raise awareness on the impacts of invasive species which threaten Wisconsin's water and land. As part of the recognition, Governor Walker issued a proclamation in 2015 encouraging “individuals and public groups to sponsor and participate in activities to help all Wisconsin residents and visitors gain a better understanding of the impact of invasive species on Wisconsin’s waters, wildlands and agricultural lands.”

Department staff contributed to the month’s educational outreach efforts through a series of seven “Ask the Experts” online chats on firewood regulation, emerald ash borer and invasive forest pests; introduced earthworms and jumping worms; invasive plants; aquatic invasive species; and purple loosestrife and Phragmites. Through this series, department employees answered more than 80 questions from the public. In addition to the online participants, numerous people later viewed transcripts of the chats.

Invader Crusader Awards

The [Wisconsin Invasive Species Council](#) awarded its 11th annual Invader Crusader Awards to honor Wisconsin citizens and organizations--both volunteer and professional--for their significant contributions to the prevention, management, education, or research related to invasive species. The awards recognize efforts at all scales--from neighborhoods to statewide parks, lakes and forests. In 2015, nine awards were presented to individuals and groups from around the state in a public ceremony at Olbrich Botanical Gardens in Madison.



2015 Invader Crusader Award recipients. Each year the Wisconsin Invasive Species Council along with the department host the Invader Crusader Awards ceremony to recognize the hard work by groups and individuals who dedicate their time to fighting invasive species.

2015 Invader Crusader Award Recipients

Volunteer Individual Category

- Bill Jaeger-Oneida County
- Jamie Kozloski-Brown County
- Paul Mozina-Fond du Lac County
- Sherry Speth-Sheboygan County

Volunteer Group Category

- Friends of the MacKenzie Center-Columbia County

Professional Individual Category

- Christal Campbell-Dane County
- Lee Shambeau-Dunn County
- Kaycie Stushek-Portage County

Organization Category

- Lakes and Rivers Association-Florence County

ISAM Video Contest

In addition to the Invader Crusader awards, the Wisconsin Invasive Species Council along with the department hosted a video contest. The contest sought to increase awareness of invasive species that invade our favorite areas to play and to teach people how to prevent the spread of invasive species in these habitats. The winner of the 2015 video contest was David Blumer, a Wisconsin resident with his video “[AIS Monster](#).”

“2015 marks another great year in the effort to control invasive species and reduce their impacts on the state. Each year it is important to recognize those dedicated individuals and groups who make a difference in their communities by taking action against invasive species.”

- Jack Sullivan
Wisconsin Invasive Species Council

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